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**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS**

SINGULAR COMPUTING LLC,

Plaintiff,

v.

GOOGLE LLC,

Defendant.

Civil Action No. 1:19-cv-12551 FDS

Hon. F. Dennis Saylor IV

**MEMORANDUM OF LAW IN SUPPORT OF
DEFENDANT GOOGLE LLC'S RENEWED MOTION TO COMPEL**

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Defendant Google LLC brings this renewed motion to compel Singular to produce the test code outputs and related documents it relied upon in its First Amended Complaint. In response to the motion to compel Google filed on this issue several months ago, Singular represented it would produce the relevant test code outputs. Based on that representation, the Court and the parties assumed this issue was moot, and the Court did not rule on it. Since making that representation to the Court, however, Singular has evaded questions as to whether it has produced the relied-upon outputs, prompting Google to analyze Singular's production of related files. That analysis confirms that Singular has not produced *any* outputs cited in its First Amended Complaint, despite its representations that it would do so. Singular has also failed to produce the summary spreadsheet excerpted in its First Amended Complaint. Google is entitled to the results of the test code that form the basis for Singular's complaint, and to any documents compiling or analyzing those results that Singular cites in its complaint. Given Singular's continued refusal to produce those outputs, Google renews its motion to compel those outputs and the related documents.

I. BACKGROUND**A. Singular committed to producing the test code cited in the complaint and its outputs.**

Singular filed its First Amended Complaint ("FAC") on March 20, 2020, repeatedly citing the "Singular test results" that purportedly provide the basis for Singular's allegation that Google's accused Tensor Processing Units (TPUs) meet the minimum error rates claimed in the Asserted Patents. *See, e.g.*, FAC, ECF No. 37, ¶¶ 94, 111, 129. The FAC includes a screenshot of these results, shown in the image below.

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		bf16
% of valid > 1.00%		4.65%
% of valid > 0.50%		55.39%
% of valid > 0.20%		92.69%
% of valid > 0.10%		98.15%
% of valid > 0.05%		99.52%

See id. The Infringement Contentions Singular served in September 2020 also refer to a “test” Singular conducted to support its infringement theory. *See* Exs. 8-10 [ECF Nos. 118-8, 118-9, 118-10] (Excerpts of Contention Claim Chart). As in the FAC, Singular’s Infringement Contentions repeatedly reference tests Singular conducted and their results, which allegedly show that Google’s TPUs infringe the Asserted Patents. *See id.*

After reviewing Singular’s infringement allegations in the FAC and infringement contentions, Google requested from Singular (1) the test code referenced in the FAC and its outputs; (2) the test code referenced in the infringement contentions and its outputs; and (3) any related documents. *See* Ex. 15 [ECF No 118-15]. As Google explained in its earlier motion to compel, Singular was required to produce the information Google requested under the Court’s scheduling order, which required Singular to produce all documents supporting its infringement contentions. *See* ECF No. 70. And, as also explained in Google’s earlier motion, Singular was also obligated to produce documents responsive to Google’s Request for Production (“RFP”) No. 68, which requests “All documents relating to the ‘Singular test’ referenced in paragraphs 94, 111, and 129 of Singular’s First Amended Complaint, including documents detailing how the tests were conducted, the parameters for the tests (including the assumptions made), [and] the full results of the tests[.]” Ex. 2 [ECF No. 118-2] (Singular’s Responses to Google’s First Set of RFPs).

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Singular produced the test code it relied upon in its infringement contentions on October 16, 2020. *See* Decl. of Andrew Bruns in Support of Google’s Renewed Motion to Compel (“Bruns Decl.”) Ex. 1 (SINGULAR-0006379). But Singular refused to produce the test code’s outputs or the test code cited in Singular’s FAC, maintaining that “the testing code itself” and “its outputs” are privileged. Ex. 17 [ECF No. 118-17] (Dec. 22, 2020 Letter from Seeve to Kamber).

Consequently, in January 2021, Google moved to compel Singular to produce the test code cited in Singular’s FAC, the test code outputs relied upon in the FAC, the test code outputs relied upon in Singular’s infringement contentions, and all related documents. In Singular’s opposition to Google’s motion, Singular characterized Google’s motion as seeking to compel Singular “to produce *test code and output files cited in the First Amended Complaint* and in Singular’s Infringement Contentions,” and then stated that “Singular agrees to produce the code and output files.” [ECF No. 129 at 1-2]. Singular further represented to the Court that because it had “agree[d] to produce the code and output files,” Google’s “Motion [was] moot as regards [to] this issue.” *Id.* at 2.

The following day, Google asked when Singular would produce both “the test code and output files cited in the FAC and infringement contentions.” Bruns Decl., Ex. 2 (Jan. 29, 2021 email from Porto to Counsel). Google also asked whether Singular was “withholding other documents responsive to RFP No. 68,” which was the subject of Google’s motion. *Id.* Singular confirmed that it would “produce the requested simulation code and results.” Bruns Decl., Ex. 3 (Feb. 2, 2021 email from Rapaport to Gannon). Singular produced the test code referenced in its FAC on February 18, 2021 (“the FAC Testing Source Code”), along with several output files (the “Test Result Files”). *See* Bruns Decl., Ex. 4 (SINGULAR-00012094).

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Following Singular’s production of the FAC Testing Source Code, Google informed Singular that the Test Result Files Singular had produced did “not appear to be the results of the testing code relied on in the [First] Amended Complaint,” and Google requested that Singular produce them. Bruns Decl., Ex. 5 (March 12, 2021 email from Porto to Counsel). Singular stated that it needed to “investigate” whether it had, in fact, produced the test code outputs relied upon in the FAC. *Id.* The following week, Google informed Singular that if it did not “immediately confirm whether Singular [had] produced the output files cited in the FAC,” Google [would] renew its motion to compel. Bruns Decl., Ex. 6 (March 16, 2021 email from Porto to Seeve). Singular responded that it had “produced . . . all files generated by [the] test programs.” *Id.*, Ex. 6 (March 16, 2021 email from Seeve to Porto). Again, Google explained that “none of the files Singular produced are the output files referenced in the FAC.” *Id.*, Ex. 7 (March 19, 2021 email from Porto to Seeve). Google requested that Singular identify by Bates number both the output of the program underlying Singular’s allegations in the FAC, and the file containing the data cited in paragraph 94 of the FAC. *Id.*, Ex. 8 (March 23, 2021 email from Porto to Seeve). Singular failed to respond.

Google and Singular held a discovery conference pursuant to Local Rule 37.1 on April 2, 2021.¹ The parties failed to reach agreement on Singular’s production of its test outputs, and Google informed Singular that it would renew its motion to compel the test code’s output and

¹ Anna Porto and Anant Saraswat participated on behalf of Google, and Brian Seeve participated on behalf of Singular. The conference began at 2:00 p.m. Eastern and lasted just under thirty minutes.

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any documents containing any output produced by the test code. Bruns Decl., Ex. 9 (April 2, 2021 email from Porto to Seeve). This renewed motion follows.²

II. ARGUMENT

A. Notwithstanding its representation to the Court, Singular has not produced the output of the test code relied upon in its complaint, or the file containing the data cited in its complaint.

Despite Singular’s representations to the Court that it “agree[d] to produce the code and output files,” and despite its representations to Google that Singular has produced “all files generated” by its test code programs, Singular has not produced the output of the FAC Testing Source Code. Following Singular’s persistent refusal to explain whether it had produced the outputs cited in the FAC, Google asked Dr. Martin Walker, a computer engineer, to analyze the FAC Testing Source Code and the Test Result Files Singular produced.³ *See* Decl. of Martin Walker in Support of Google’s Mot. to Compel. (“Walker Decl.”) As Dr. Walker’s analysis reflects, (1) the Test Result Files Singular produced were not derived from the FAC Testing Source Code that Singular relied upon in its complaint, and (2) none of the Test Result Files Singular produced contain the outputs cited in Singular’s FAC.

² Google waited to file this motion until it received Singular’s second supplemental validity contentions. The Court ordered Singular to produce those contentions, which are responsive to Google’s Interrogatory No. 14, in its March 12, 2021 order. ECF No. 144. In response to that order, Singular produced a supplemental response on March 26, 2021, to which Google objected. Singular subsequently served a revised response on April 23, 2021. Singular subsequently served a revised response on April 23, 2021, purporting to address the issues Google had previously raised. Further meet and confer on that issue is appropriate before again bringing it to the Court’s attention, if necessary.

³ Dr. Walker received his Bachelor of Science degree in Electrical Engineering from the Massachusetts Institute of Technology and his Master of Science and Doctor of Philosophy degrees in Electrical Engineering from Stanford University. He has over 40 years of experience writing and analyzing computer software. *See* Walker Decl. ¶¶ 9-10.

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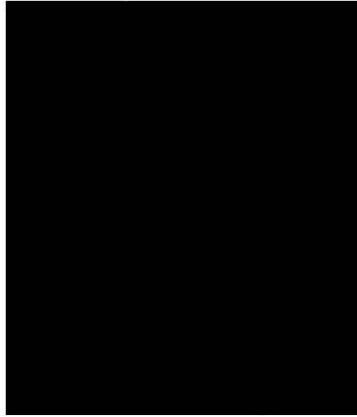
First, the Test Result Files Singular produced were not derived from the FAC Testing Source Code, as demonstrated by the functionality of that code itself. Specifically, none of the Test Result Files contain the text “[REDACTED]” which the outputs of running the compiled FAC Testing Source Code should have.

[REDACTED]

In the C programming language, which is the language of the FAC Testing Source Code, the [REDACTED] command prints the text that appears between the code’s quotation marks inside the parenthesis. Walker Decl. ¶¶ 25-26. Accordingly, when the FAC Testing Source Code is compiled to an executable program, that program is run, and the “[REDACTED]” statement excerpted above is executed, the output should be [REDACTED]’ subject to certain errors that are inapplicable here. *Id.* ¶ 25. Thus, whenever an executable program created by compiling the FAC Testing Source Code is run, the output of that program must include, at a minimum, the text “[REDACTED]” *Id.* The text “[REDACTED]” however, does not appear in any of the Test Result Files Singular has produced. *Id.* ¶ 26. Therefore, as Google has explained to Singular repeatedly, *none* of the outputs shown in the Test Result Files were produced by any executable program compiled from the FAC Testing Source Code.

Further demonstrating that none of the Test Result Files were derived from the FAC Testing Source Code, the Test Result Files Singular produced contain the text “[REDACTED]” as reflected in the excerpted Test Result File below, which is nowhere in the FAC Testing Source Code underlying the FAC.

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See e.g., Bruns Decl., Ex. 10 (SINGULAR-00012101), Walker Decl., ¶ 27-28. Indeed, the text ‘[REDACTED]’ does not appear *anywhere* in the FAC Testing Source Code, including in the [REDACTED] statements. *See id.*; Walker Decl. ¶ 28 (“The FAC Testing Program cannot produce the string [REDACTED] when executed.”). Explaining the mismatch, the Test Result Files appear to be derived from the test code Singular produced in October 2020, which is different test code that underlies Singular’s infringement contentions. *See* Bruns Decl., Ex. 1 (SINGULAR-0006379); Walker Decl. ¶ 31. That program, unlike the FAC Testing Source Code, contains the text [REDACTED]” *Id.* It is thus clear that Singular has not produced any outputs of the FAC Testing Source Code; rather, the Test Result Files Singular has produced were generated exclusively by the test code underlying Singular’s infringement contentions. *Id.* ¶ 33

Second, none of the Test Result Files Singular produced are the ones cited in Singular’s FAC, because none of the numbers included in the FAC appear in the Test Result Files. In paragraphs 94, 111, and 129, the FAC refers to the “Singular test results” and includes the image below:

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		bf16
% of valid > 1.00%		4.65%
% of valid > 0.50%		55.39%
% of valid > 0.20%		92.69%
% of valid > 0.10%		98.15%
% of valid > 0.05%		99.52%

Neither that image nor the “results” it contains are in the Test Result Files. *See* Walker Decl. ¶ 36. Indeed, neither the numbers themselves nor the text “% of valid” appears anywhere in the Test Result Files. *See* Walker Decl. ¶ 36. Furthermore, the Test Result Files do not contain any spreadsheet cells. *Id.* Thus, none of the outputs in the Test Result Files are the “Singular test results” cited in the FAC.

Finally, to the extent Singular attempts to explain its failure to produce the outputs by suggesting that there were no files generated by the Testing Source Code, that explanation cannot be correct. Singular does not dispute that the Testing Source Code generated outputs, a summary of which Singular cited in its FAC—including in the image above, which is clearly derived from a computer file. Furthermore, by way of the Test Result Files, Singular has already produced the output of the testing code underlying its infringement contentions; therefore, Singular knows exactly the type of information Google requests. If Singular’s position is that the “output” of the test code underlying the FAC is not preserved in any file, it should explain why.

B. Google is entitled to the results of the test code that Singular used to support the infringement allegations in its complaint, and any related documents.

Google is entitled to the results of the FAC Testing Source Code, which serve as the basis for Singular’s infringement allegations against Google in the complaint, along with any documents summarizing those results, including the one excerpted in the FAC. As Google

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explained in its previous Motion to Compel (and Singular does not contest), without those results, Singular may well have lacked a Rule 11 basis to file its complaint. *See Trs. of Bos. Univ. v. Everlight Elecs. Co.*, No. 12-11935-FDS, 2013 WL 2932822, at *3 (D. Mass. June 12, 2013) (“[P]ursuant to Rule 11 ‘allegations of patent infringement must be supported by a good faith basis . . . that each accused product (or combination of products) meets each limitation of an asserted claim.’”); *View Eng’g, Inc. v. Robotic Vision Sys., Inc.*, 208 F.3d 981, 986 (Fed. Cir. 2000) (“The presence of an infringement analysis plays the key role in determining the reasonableness of the pre-filing inquiry made in a patent infringement case under Rule 11.”). Given that Singular’s test is central to its allegations, Google has “the right to refute [Singular’s] evidence of infringement, and information on [Singular’s] tests,” . . . is **clearly relevant** for that purpose.” *Loctite Corp. v. Fel-Pro Inc.*, 94 F.R.D. 1, 3 (N.D. Ill. 1980), *aff’d and remanded*, 667 F.2d 577 (1981) (emphasis added). Singular must therefore produce the output of the FAC Testing Source Code, which Singular put at issue in this case by including it in its complaint, or explain why the output was not preserved.

III. CONCLUSION

For the foregoing reasons, Google respectfully requests that the Court grant its motion to compel.

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Respectfully submitted,

Dated: April 26, 2021

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CERTIFICATE OF SERVICE

I certify that this document is being filed through the Court's electronic filing system, which serves counsel for other parties who are registered participants as identified on the Notice of Electronic Filing (NEF). Any counsel for other parties who are not registered participants are being served by first class mail on the date of electronic filing.

/s/ Nathan R. Speed

Nathan R. Speed